

CONSTRUCTION VALUE ENGINEERING CONCEPT PROPOSAL
MISSOURI DEPARTMENT OF TRANSPORTATION

080328-X05
Contract ID 080238-X05 Job No. J0I0978B Date 05/08/2008
County Scott / Cape Girardeau Route I-55 Original Bid Cost \$4,715,155.55
Contractor Collins & Hermann, Inc. By Kevin Hermann
Designed By _____ Phone (314) 869-8000

VE 08-37

1. Description of existing requirements and proposed change(s). Advantages/Disadvantages

SEE ATTACHMENT

2. Estimate of reduction in construction costs. \$497,947.27

3. Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.

SEE ATTACHMENT

4. Anticipated date for submittal of detailed change(s) of items required by Section 104.6 of the Specifications.

05/08/2008

(date)

5. Deadline for issuing a change order to obtain maximum cost reduction, noting the effect of contract completion time or delivery schedule.

Cost savings

(date)

(effect)

6. Dates of any previous or concurrent submission of the same proposal.

4/29/08

(date and/or dates)

Additional Comments:

For additional questions or concerns, please contact Kevin Hermann directly at 314-568-4381.

**** Portion Below This Line To Be Filled Out by MoDOT ****

Comments:

Recommend that this proposal be rejected. See attached letter for reasoning.

Brian Holt

Submitted By Resident Engineer

5/22/08

Date

Comments:

- ☐ Approval
Recommended
- ☒ Rejection
Recommended

Mark Shelton by P. R. Her

District Engineer

5-28-08

Date

Comments:

Concur w/district

David D. Cooney

- ☐ Approval
- ☒ Rejection

State Operations Engineer

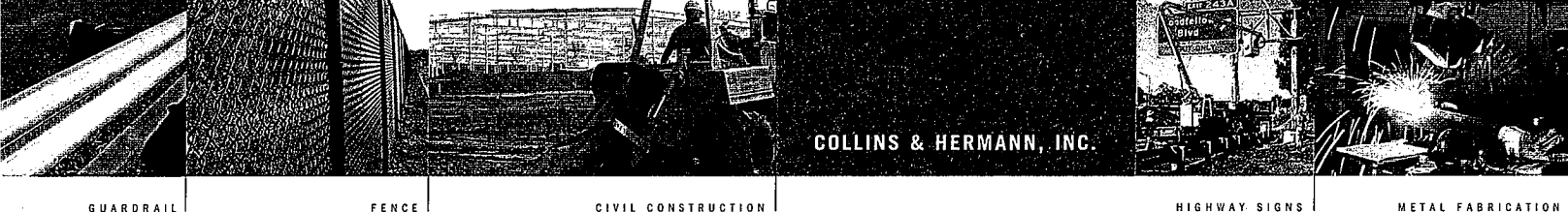
BAW

6-3-08

Date

Distribution:

Resident Engineer, District Operations Engineer, State Operations Engineer
*Value Engineering Administrator - *MoDOT, P.O. Box 270, Jefferson City, MO 65102



May 8, 2008

Brian Holt, Resident Engineer
MISSOURI DEPT. OF TRANSPORTATION
Sikeston Project Office
2675 North Main
P.O. Box 160
Sikeston, MO 63801

**RE: V.E. PROPOSAL FOR ALTERNATE GUARD CABLE PLACEMENT
AND VEGETATIVE BARRIER
JOI0978B
ROUTE I-55
SCOTT & CAPE GIRARDEAU COUNTIES
C&H JOB NO. 10-8761-K**

Brian:

There is nothing in any of the sources we have used to prepare our VE proposal including MODOT's own Bulletins and Reports that supports the 4 ft down the slope lateral placement of High Tension Cable Barrier (HTCB) as the **ONLY** lateral placement for medians over 30' and with grades between 6 to 1 or flatter and up to 4 to 1.

At the heart of our VE proposal is the ability to change the lateral placement of the HTCB due to the width of the median and the existing grades being 6 to 1 or flatter. Given the existing conditions an alternate lateral placement of the guard cable will allow for an alternate vegetative barrier providing the project with a substantial up front savings in construction costs, superior performance of the cable system, lower ongoing maintenance costs and better safety for both maintenance personnel and the traveling public when making repairs.

Lateral placement of High Tension Cable Barriers 4 ft down the slope is only required based on an FHWA NCHRP 350 Crash Test Approval Letter for slopes up to 4 to 1. An alternate acceptable lateral placement of the HTCB is available for slopes 6 to 1 or flatter with medians wider than 30 feet both of which exist on this project.

Based on our research the optimal lateral placement of the HTCB on this project, in areas where the median is 30 ft or wider and the slopes are 6 to 1 or flatter, is 1 ft up from the flat bottom ditch placing the HTCB 15' off the pavement and 11' off the existing shoulder. The installation of an 18" wide 3" thick concrete vegetative barrier along with driven sockets will provide the anchors and line post with additional lateral support over the 3" thick asphalt vegetative barrier. Placing the HTCB at this location will reduce nuisance hits and provide a safer location for maintenance personnel and the public when making repairs.

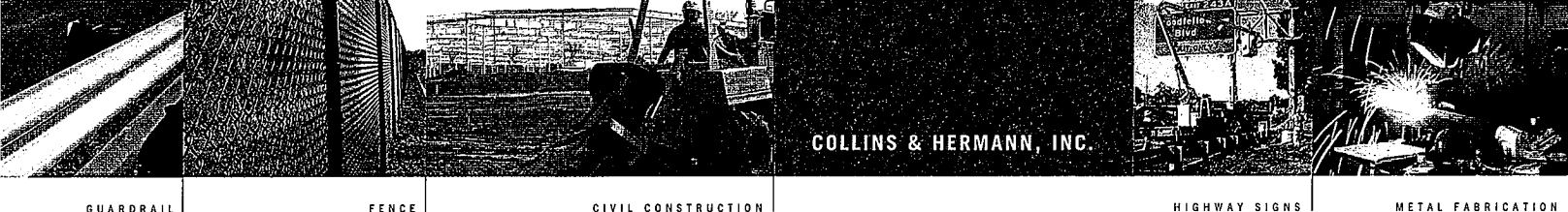
It seems excessive to place the HTCB at a location that out of concerns for mowing requires the installation of a 6' wide 3' thick asphalt vegetative barrier at an additional cost to the project of roughly **\$500,000.00**. If this VE is approved along with a previously proposed VE on this project and a HTCB project in District 4, Collins and Hermann, Inc will have offered up project VE savings totaling nearly **\$700,000.00** that will save MODOT and the taxpayers of Missouri additional money in the future with lower HTCB maintenance costs.



COLLINS & HERMANN, INC.
www.collinsandhermann.com

St. Louis
1215 Dunn Road
PO Box 38901-0901
St. Louis, MO 63138
Phone 314.869.8000
Fax 314.869.8498

Kansas City
2366 State Line Road
Kansas City, KS 66103
Phone 913.621.3906
Fax 913.621.2233



GUARDRAIL

FENCE

CIVIL CONSTRUCTION

HIGHWAY SIGNS

METAL FABRICATION

COLLINS & HERMANN, INC.

We appreciate your input and concern with the correct placement of the High Tension Cable Barrier. After your review and consideration, please contact me directly at 314-568-4381.

Cordially,
COLLINS & HERMANN, INC.

Kevin Hermann
President

KBH/ama

Enclosures



COLLINS & HERMANN, INC.
www.collinsandhermann.com

St. Louis
1215 Dunn Road
PO Box 38901-0901
St. Louis, MO 63138
Phone 314.869.8000
Fax 314.869.8498

Kansas City
2366 State Line Road
Kansas City, KS 66103
Phone 913.621.3906
Fax 913.621.2233

Missouri
Department
of Transportation



Sikeston Project Office
2675 North Main
P.O. Box 160
Sikeston, MO 63801
573-472-5325
Fax 573-472-5329
Toll free 1-888 ASK MoDOT

Brian Holt, PE, Resident Engineer



2007 Missouri Quality Award Winner

May 22, 2008

Kevin Hermann
Collins & Hermann, Inc
P.O. Box 38901-0901
St. Louis, MO 63138

Dear Mr. Hermann:

Subject: VE Proposal Review
JOI0978B
Route I-55
Scott & Cape Girardeau Counties

A complete review has been conducted of you VE Proposal to move the location of the guard cable from the offset specified in the contract. At this time, the proposal is rejected.

The offset specified in the contract is based on current FHWA testing and approval. Locations you have proposed have not been tested or approved by the FHWA, therefore, MoDOT cannot allow the placement of the post at any other location than what is specified by the contract. This is consistent with MoDOT's analysis and direction of cable median barrier and with the FHWA's test result of Gibraltar's system. In addition, there is no clear evidence that the cable will work in a location other than what is specified in the contract.

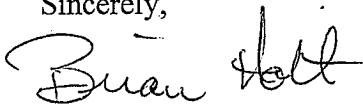
You mention that the existing grades are 6:1 or flatter. This is not the case throughout the project. The slopes are not consistent and vary any where from a 4:1 to a 6:1. In some areas, especially where the interstate has been overlaid recently, the slope with in the first few feet of the shoulder is around a 4:1 slope that transitions to a 6:1 slope. This is essentially a barn roof effect that could contribute to a vehicle leaving the ground as it departs the pavement, compressing the suspension on impact, and potentially under-riding the cable at the offsets provided in your proposal. This design issue was anticipated and addressed in the contract special provisions with the specification of a product system certified for a 4:1 slope and in the plan typical section with the specification of an offset of 4 feet from the shoulder.

Another consideration is that the potential safety benefit is lost for maintenance performing mowing and repair work from behind the barrier at the offsets provided in your proposal.

If testing data can be provided that supports the locations you have proposed, then we re-evaluate the VE proposal.

You have also requested to use a driven socket in lieu of the contract requirement of using a concrete socket. This request is denied. Using the driven socket in conjunction with the asphalt vegetative barrier will pose problems with maintaining the system. Re-compacting the soil around the socket would be made difficult because of the presence of the surrounding asphalt. After discussions with District Maintenance, it was concluded to be preferable to address the occasional cracked concrete socket than to further damage the asphalt barrier to re-compact around the driven sockets.

Sincerely,

A handwritten signature in cursive script that reads "Brian Holt".

Brian Holt, PE
Resident Engineer

bh

Copy: File

1. Description of existing requirements and proposed change(s). Advantages / Disadvantages.

Existing Bid Requirements

- 6' wide x 3" thick asphalt vegetative barrier placed adjacent to existing shoulder with the guard cable being placed 4' down the slope from the existing shoulder

ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	EXTENSION
0020	Shaping Slopes, Class II	2,327	\$105.37	\$ 245,195.99
0030	Misc. Pavement for Vegetative Barrier	170,892	\$ 9.26	\$1,582,459.92
			TOTAL	\$1,827,655.91

Proposed VE

- 18" wide x 3" thick concrete vegetative barrier placed either 1' up from ditch bottom or at least 8' up from ditch bottom (see attached drawings).
- Concrete to be poured to unformed (dirt) edge with a strike off finish
- Exception is roughly a 3 mile stretch from mile marker 89 to mile marker 91. That stretch to be installed on 6' wide x 3" thick concrete due to the grade and width as shown on plan.

ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	EXTENSION
0020	Shaping Slopes, Class II	134.85	\$105.37	\$ 14,209.15
	Misc. Pavement for Vegetative Barrier (Concrete)	45648.00	\$ 28.13	\$1,284,078.24
	4" Aggregate Bedding w/ Geotextile Fabric (Bullnose Areas)	3325.00	\$9.45	\$ 31,421.25
			TOTAL	\$1,329,708.64

TOTAL SAVINGS \$497,947.27

Advantages:

- Fewer nuisance hits
- Safer for maintenance worker
- Monolithic pour resulting in improved driven socket performance
- Less maintenance as compared to asphalt

Disadvantages:

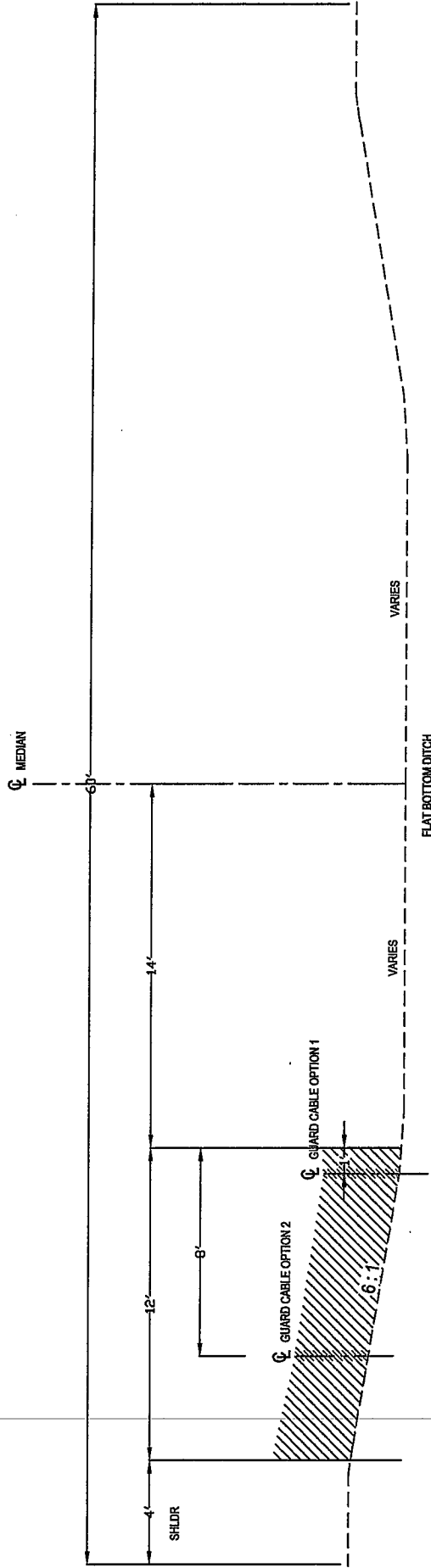
- None

3. Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.

- Concrete requires less maintenance as compared to asphalt
- Concrete has a longer life span than asphalt

MEDIAN CABLE BARRIER

NB LOG MILE FROM TO	LENGTH OF CABLE	SHAPING SLOPES II	ANCHOR ASSY #	BULLNOSE LENGTH		3" THICK ASPHALT			TOTAL	3" THICK CONCRETE			TOTAL	4" AGGREGATE W/GEOTEXTILE 14.25" WIDE FOR BULLNOSE SY		
				EA	LF	4" WIDE SY	6' WIDE SY	12' WIDE FOR BULLNOSE SY		18" WIDE SY	6' WIDE SY	33" WIDE (ANCHORS) SY				
66.229	67.491	6663				2	55		2961			1110.6	16.8	1127.4		
67.551	67.768	1146				2	55		509			191.0	16.8	207.8		
67.669	70.239	13042				2	55		5796			2173.6	16.8	2190.4		
69.380	69.417				200			266.7				267			316.7	
70.249	73.995	19779				2	55		8791			3296.5	16.8	3313.3		
71.921	71.939				100			133.3				133			158.3	
74.005	75.450	7630				2	55		3391			1271.6	16.8	1288.4		
75.506	77.351	9742				2	55		4330			1623.6	16.8	1640.4		
77.361	80.191	14942				2	55		6641			2490.4	16.8	2507.2		
77.632	77.650				100			133.3				133			158.3	
80.201	81.735	8100				2	55		3600			1349.9	16.8	1366.7		
80.979	80.997				100			133.3				133			158.3	
81.745	86.041	22683				2	55		10081			3780.5	16.8	3797.3		
82.620	82.638				100			133.3				133			158.3	
86.051	86.448	2096				2	55		932			349.4	16.8	366.2		
86.487	87.270	4134				2	55		1837			689.0	16.8	705.8		
87.289	88.650	7186				2	55		3194			1197.7	16.8	1214.5		
87.528	87.565				200			266.7				267			316.7	
88.692	89.268	3041				2	55			2028		2027.5	16.8	2044.3		
89.278	89.712					2	55			1528		1527.7	16.8	1544.5		
89.774	90.177	2128				2	55		1419			1418.6	16.8	1435.4		
90.235	91.376	6024				2	55		4016			4016.3	16.8	4033.1		
91.537	92.278	3912				2	55		1739			652.1	16.8	668.9		
92.037	92.074				200			266.7				267			316.7	
92.559	93.250	3648				2	55		1622			608.1	16.8	624.9		
93.440	94.049	3216				2	55		1429			535.9	16.8	552.7		
93.822	93.850				150			200.0				200			237.5	
94.088	96.870	14689				2	55		6528			2448.2	16.8	2465.0		
95.250	95.287				200			266.7				267			316.7	
95.592	95.610				100			133.3				133			158.3	
96.474	96.511				200			266.7				267			316.7	
96.880	99.234	12429				2	55		5524			2071.5	16.8	2088.3		
98.098	98.116				100			133.3				133			158.3	
99.244	99.839	3142				2	55		1396			523.6	16.8	540.4		
99.960	102.292	12313				2	55		5472			2052.2	16.8	2069.0		
101.430	101.458				150			200.0				200			237.5	
102.298	105.162	15122				2	55		6721			2520.3	16.8	2537.1		
104.625	104.643				100			133.3				133			158.3	
105.172	105.748	3041				2	55		1352			506.9	16.8	523.7		
105.810	106.525	3775				2	55		1678			629.2	16.8	646.0		
106.535	111.050	23839				2	55		10595			3973.2	16.8	3990.0		
107.231	107.249				100			133.3				133			158.3	
111.060	111.222	856				2	55		380			142.7	16.8	159.5		
TOTAL:	230610	134.85	56	1540					96500	8990	2800	36187	8990	471	45648	3325



GUARD CABLE PLACEMENT 6 : 1 AND LESS THAN 4 : 1

OPTION 1: 1' UP FROM THE DITCH BOTTOM

OPTION 2: 8' UP FROM THE DITCH BOTTOM

LOG MILE 66.229 - 87.565

LOG MILE 91.537 - 111.222

AREA AVAILABLE FOR GUARD CABLE INSTALLATION

AREA NOT AVAILABLE FOR GUARD CABLE INSTALLATION



COLLINS & HERMANN, INC.

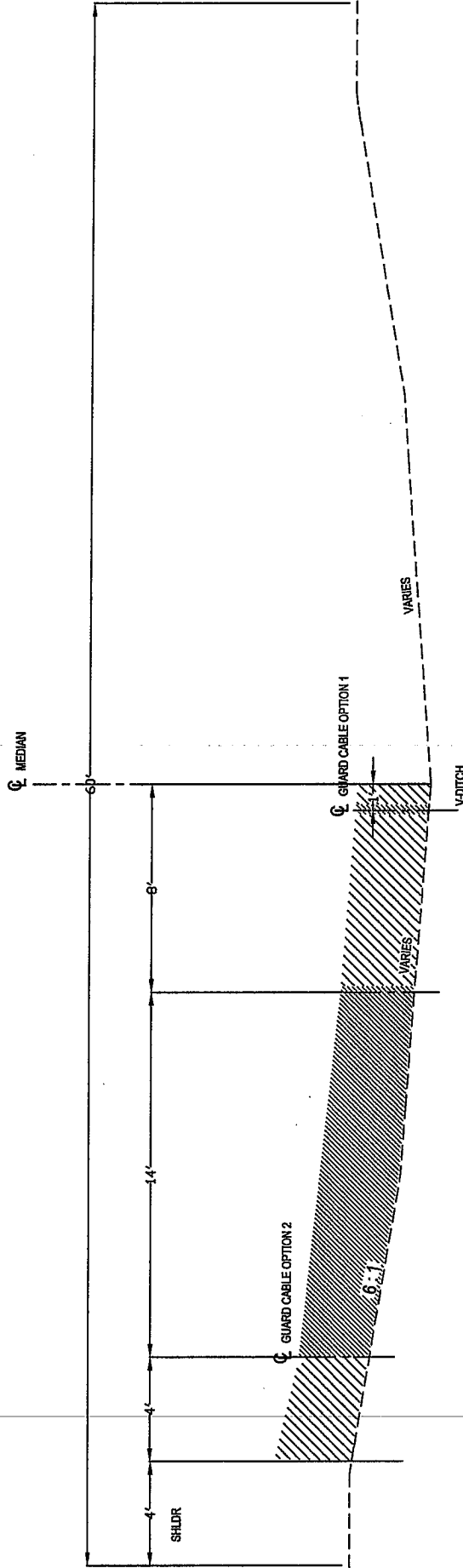
GUARDRAIL / FENCE / SIGNING / CIVIL CONSTRUCTION

1215 DUNN ROAD
P.O. BOX 38901-0901
ST. LOUIS, MO 63138

JOB NO. J0109788, ROUTE I-55
SCOTT & CAPE COUNTIES

HIGH TENSION GUARD CABLE PLACEMENT 6 : 1 AND LESS THAN 4 : 1
FLAT BOTTOM DITCH

C & H JOB # 10-8761-K DATE: 5/8/08 SHEET 1 OF 1



GUARD CABLE PLACEMENT 6 : 1 AND LESS THAN 4 : 1

OPTION 1: 1' UP FROM THE DITCH BOTTOM

OPTION 2: 8' UP FROM THE DITCH BOTTOM

UP TO 4' FROM SHOULDER

LOG MILE 86.229 - 87.565

LOG MILE 91.537 - 111.222

AREA AVAILABLE FOR GUARD CABLE INSTALLATION

AREA NOT AVAILABLE FOR GUARD CABLE INSTALLATION



COLLINS & HERMANN, INC.

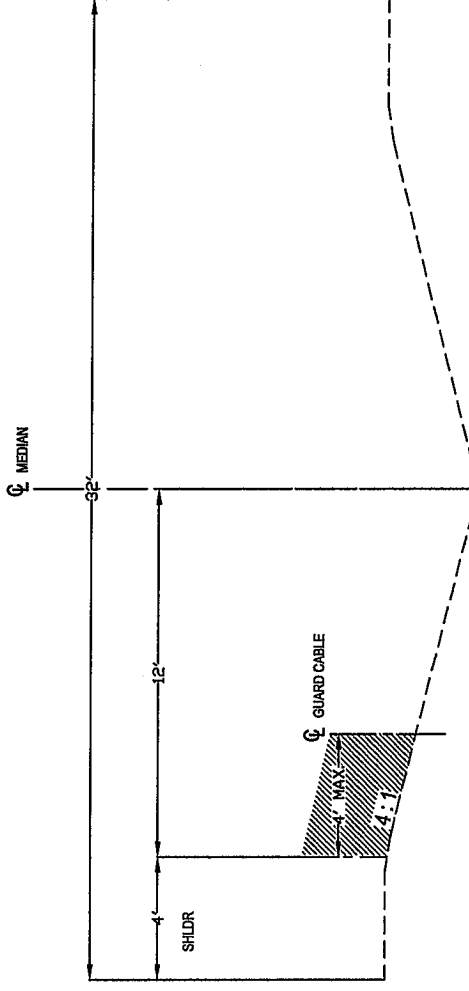
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P.O. BOX 38901-0901
ST. LOUIS, MO 63138

JOB NO. J010978B, ROUTE I-55
SCOTT & CAPE COUNTIES

HIGH TENSION GUARD CABLE PLACEMENT 6 : 1 AND LESS THAN 4 : 1
V-DITCH

C & H JOB # 10-8761-K DATE: 5/8/08 SHEET 1 OF 1



GUARD CABLE PLACEMENT 4 : 1
 NO MORE THAN 4' DOWN THE SLOPE
 DEPENDING ON SHOULDER WIDTH
 LOG MILE 88.692 - 91.376

AREA AVAILABLE FOR GUARD CABLE INSTALLATION

AREA NOT AVAILABLE FOR GUARD CABLE INSTALLATION



COLLINS & HERMANN, INC.

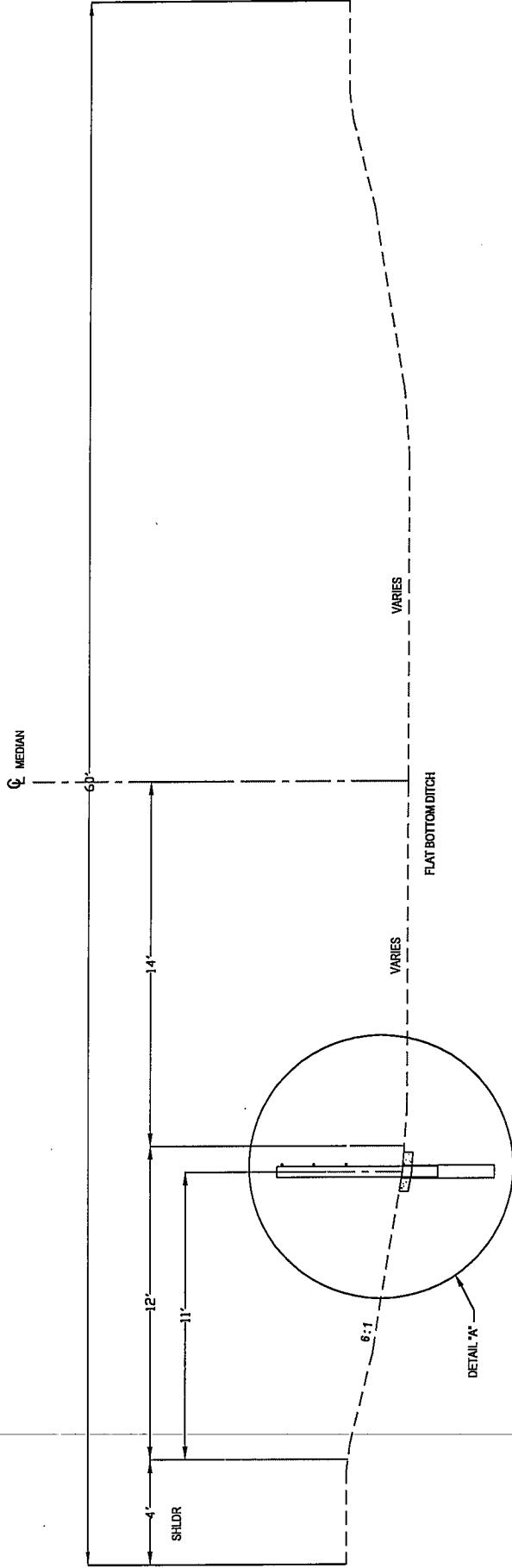
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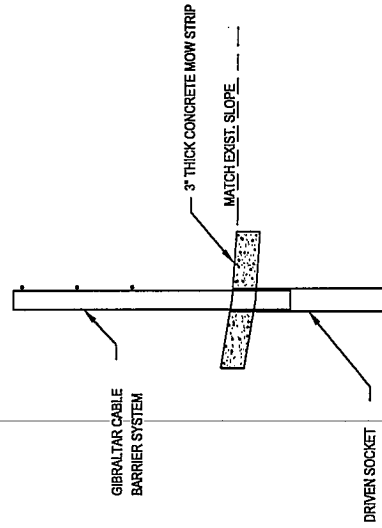
JOB NO. J010978B, ROUTE I-55
 SCOTT & CAPE COUNTIES

HIGH TENSION GUARD CABLE PLACEMENT 4 : 1

C & H JOB # 10-8761-K DATE: 5/8/08 SHEET 1 OF 1



RTE. I-55 TYPICAL SECTION



DETAIL "A"



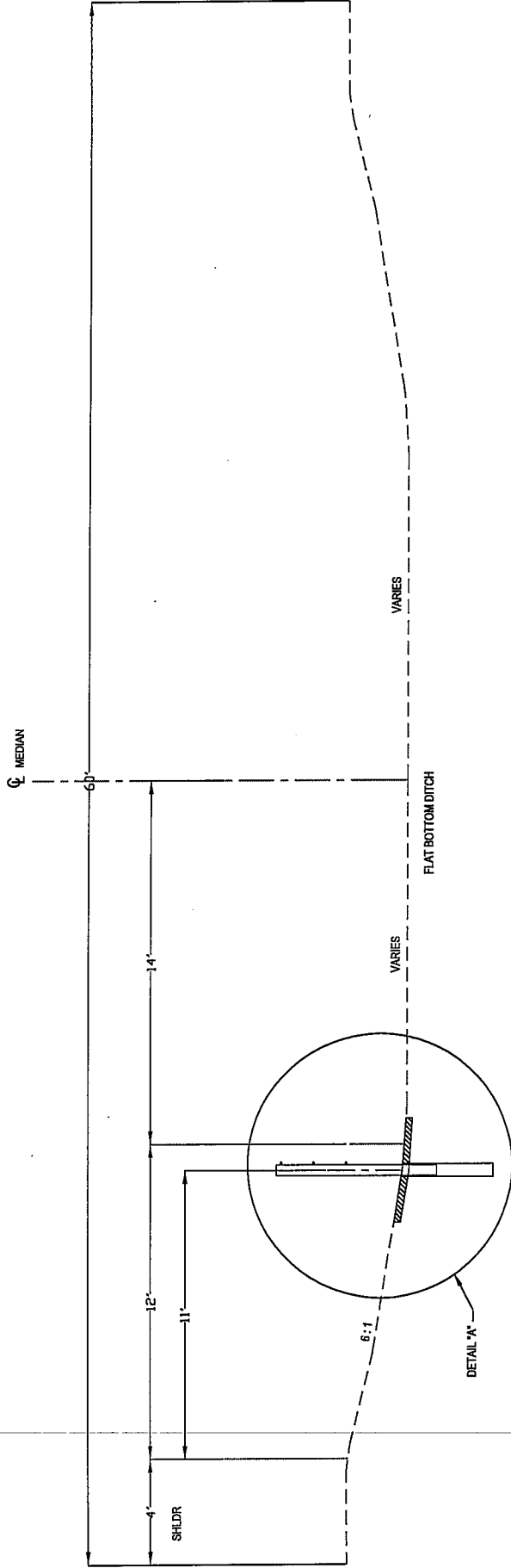
COLLINS & HERMANN, INC.

GUARDRAIL / FENCE / SIGNING / CIVIL CONSTRUCTION

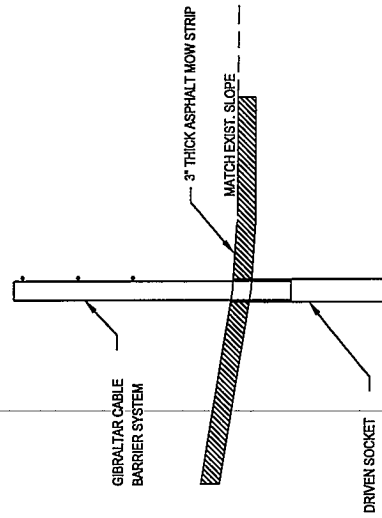
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JOB NO. J0109788, ROUTE I-55
SCOTT & CAPE COUNTIES

HIGH TENSION GUARD CABLE TYPICAL SECTION



RTE. I-55 TYPICAL SECTION



DETAIL "A"



COLLINS & HERMANN, INC.

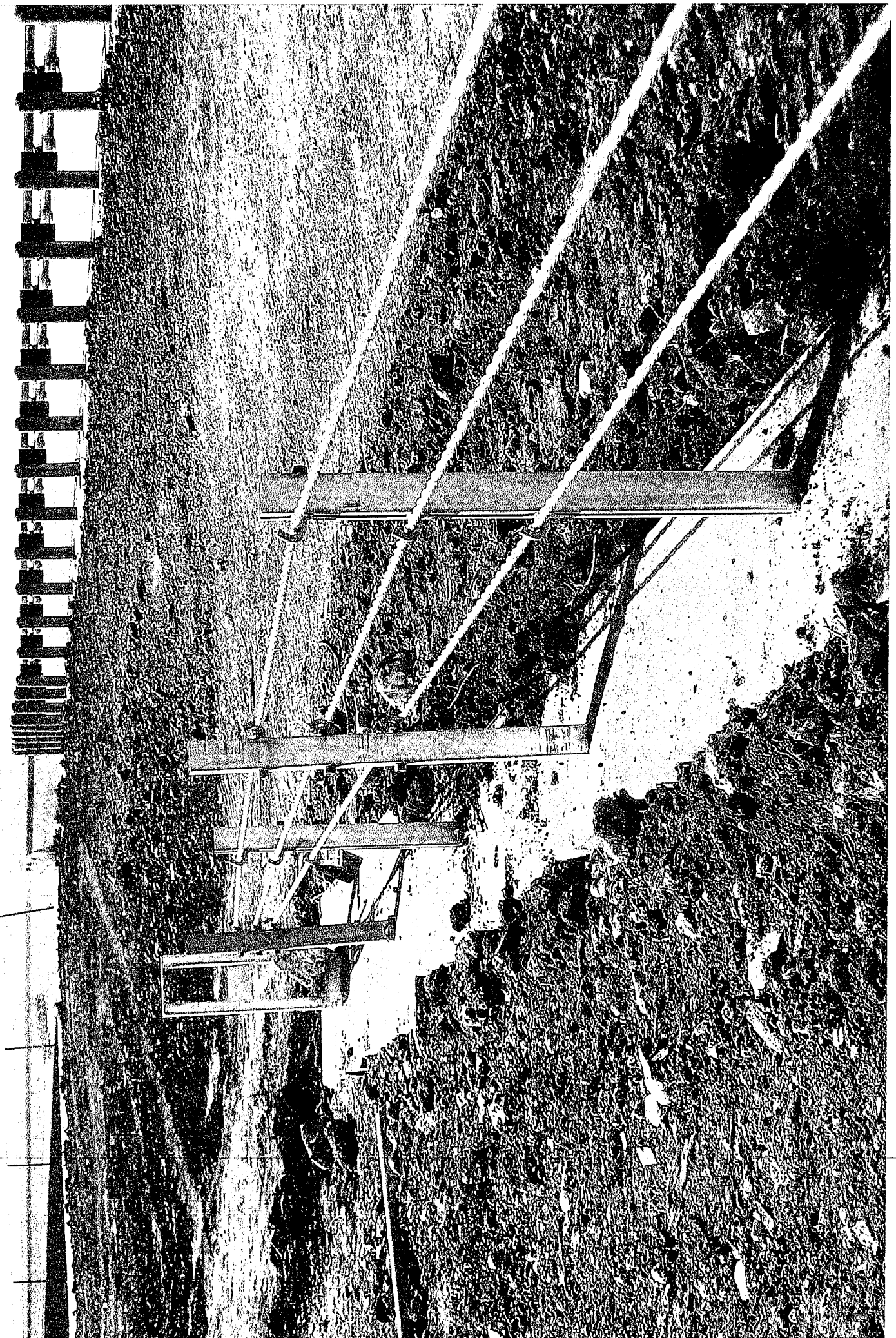
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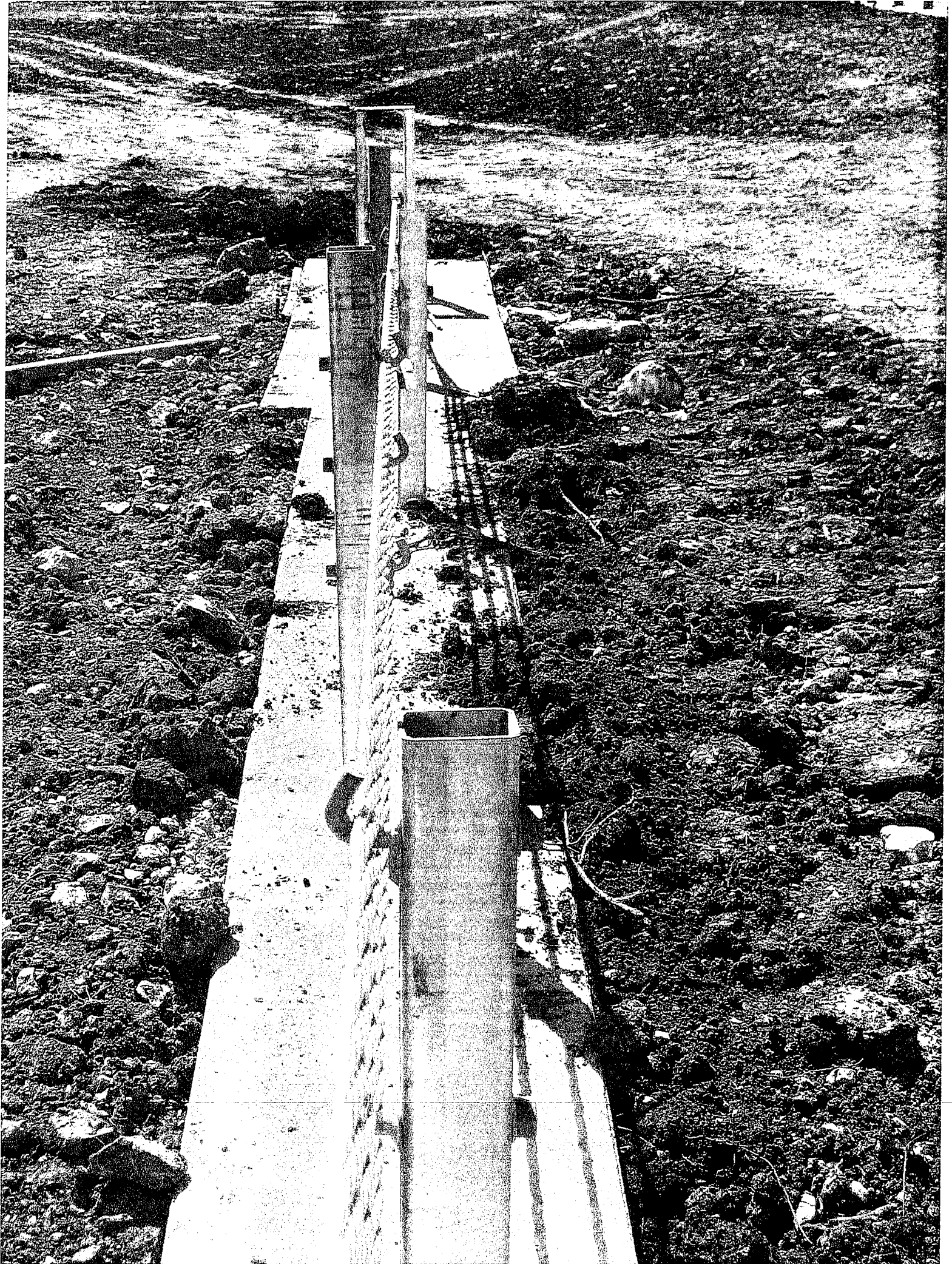
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JOB NO. J010978B, ROUTE I-55
SCOTT & CAPE COUNTIES

HIGH TENSION GUARD CABLE TYPICAL SECTION

C & H JOB # 10-8761-K DATE: 5/1/08 SHEET 1 OF 1





VALUE ENGINEERING CHECK SHEET

TYPE OF WORK

(Check one that applies)

- ☐ Bridge/Structure/Footings
- ☐ Drainage Structures (RCP, RCB, CMP's, ect.)
- ☐ TCP/MOT
- ☐ Paving (PCCP, ect.)
- ☐ Grading/MSE Walls
- ☐ Signal/Lighting/ITS
- ☒ Misc. Guardcable and Vegetative Barrier

SUMMARY OF PROPOSAL

(If needed, condense summary to a couple of lines)

Contractor wanted to relocate the guardcable and change the vegetative barrier.

SCANNING OF DOCUMENT

If the proposal is large, please mark or make note, which pages need to be scanned into the database. If there are special instructions, make note of them here.
